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10/814,019	03/31/2004	Andrei Leonida	67010-072; H2715-SS	5522

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EXAMINER	
CREPEAU, JONATHAN	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/814,019	LEONIDA ET AL.	
	Examiner	Art Unit	
	Jonathan S. Crepeau	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 September 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) *11-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 21-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office action addresses claims 1-20 and newly added claims 21-24. Claims 11-20 remain withdrawn from consideration. Claims 1-4 and 10, which were not amended, remain rejected under 35 USC 102 and 103 over Mao et al. Claims 5-9 and 21-24 are subject to new grounds of rejection under 35 USC 103 as necessitated by amendment. Accordingly, this action is made final.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 21 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 21 recites that the cell structure includes another protrusion spaced from said protrusion, said another protrusion and said protrusion forming a tortuous path. However, this limitation is considered to introduce new matter. Figure 9 and [0037] of the instant specification disclose that the first and second protrusions are located on different members. However, the language of

claim 21 provides for a configuration where the first and second protrusion are both located on the same member, which is not supported by the originally-filed application. As such, claim 21 is believed to introduce new matter into the application.

Claim Rejections - 35 USC § 102

4. Claims 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Mao et al (U.S. Patent 6,989,214). In Figures 3a and 3b, the reference teaches an electrochemical cell structure comprising first and second conductive members (82, 84). The first member comprises a protrusion (82a) on the periphery thereof and the second member comprises a corresponding volume (84a) on the periphery thereof. A securing member (insulator 89) is disposed between the volume and the protrusion. As shown in Figure 1b, the conductive members have openings for conducting fluid therethough.

Thus, claim 1 is anticipated.

Claim Rejections - 35 USC § 103

5. Claims 2-4, 10, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mao et al.

The reference is applied for the reasons stated above. However, the reference does not expressly teach that the securing member comprises an adhesive as recited in claim 2, or that the

adhesive comprises an ethylene acrylic acid copolymer tape, as recited in claim 4. The reference also does not expressly teach that the volume is sized larger than the protrusions as recited in claim 10.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because each of these limitations would be rendered obvious by the reference. Regarding the recitation of an ethylene acrylic acid copolymer tape, the reference teaches this material for use in another embodiment of the invention in column 12, line 29. Thus, it would be well within the skill of the art to use this material as the "insulating" material of the embodiment of Fig. 3, and it would further provide an adhesion capability. Accordingly, this limitation would be rendered obvious.

With regard to claim 10, it would be obvious to use a volume sized larger than the protrusion. The artisan would be sufficiently skilled to adjust the shapes of the volume and/or protrusion to affect greater sealing or provide more room for the adhesive. As such, this subject matter is not considered to distinguish over the reference.

Regarding claim 3, this claim is a product claim that recites the process by which the adhesion is carried out and is therefore given little patentable weight (MPEP 2113).

6. Claims 5-9 and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Titterington et al (U.S. Patent 5,316,644) in view of WO 2004/086541.

Titterington et al. teach an electrochemical cell structure comprising a first conductive member (e.g., 10) and a second conductive member (e.g., 10") (see abstract; Figs. 1 and 3). The conductive members each comprise a central area (11) and a peripheral area (12), the central area comprising a plurality of openings in fluid communication with the openings on an adjacent member. Regarding claims 5 and 6, the first and second peripheral areas comprise holes (13-20).

Titterington et al. do not expressly teach that the first conductive member has a volume on the first peripheral area and the second conductive member has a protrusion on the second peripheral area extending into the volume, and a securing member located therebetween, as recited in claim 1.

WO '541 is directed to an integrated electrically conductive electrochemical cell component. As shown in Figure 3b and described in [0044], two plates are sealed together in their peripheral region by welding and comprise a protrusion and volume structure (25, 30) having a polymeric securing member (35) therebetween. In [0045], it is also disclosed that the welding method may also be used to create a seal at the periphery of the manifold holes of the plates.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use the sealing configuration of WO '541 in the electrochemical cell of Titterington et al. In [0010], WO '541 teaches that "[t]here, therefore, remains a need to provide improved seals for bi-polar or coolant plates, and a process for making such seals, which reduces the disadvantages associated with conventional sealing techniques." Accordingly, the artisan would be motivated

to use the sealing configuration of WO '541 in the electrochemical cell of Titterington et al. Furthermore, all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Regarding claims 5 and 6, which recite that the volume and protrusion extend at least partially around holes in the peripheral area, it would be obvious to seal the holes (13-20) of Titterington with the volume and protrusion structure disclosed by WO '541 (the latter expressly disclosing manifold sealing in [0045]).

Regarding claims 7 and 9, Figure 3d of WO '541 discloses a first protrusion spaced radially from a second protrusion. Accordingly, it would also be obvious to incorporate this structure into the electrochemical cell of Titterington et al.

Regarding claim 8, it would be obvious to seal the entire circumferential periphery of Titterington et al. with the sealing structure of WO '541.

Regarding claim 24, the volume of WO '541 is inherently capable of accommodating the securing member when it is in a liquid state.

Regarding claims 22 and 23, which recite another volume (protrusion) extending transversely from the first volume (protrusion), the combination of circumferential sealing and manifold hole sealing in Titterington et al. would read on this subject matter since portions of the manifold seals would be at approximately right angles to the circumferential seal(s).

Regarding claim 21, which recites another protrusion spaced from the protrusion and forming a tortuous path, it would be obvious to use discontinuous or irregularly spaced protrusions to seal the circumference and/or manifolds of Titterington et al., thereby forming the claimed tortuous path. Since the plates of WO '541 are eventually joined using a welding process, the use of fewer protrusions would decrease the welding contact area and therefore result in a savings of energy during welding. Additionally, if the protrusions are appropriately located and overlapped, there would be no decrease in sealing capability of the plates. As such, the subject matter of claim 21 would be rendered obvious.

Note: WO '541 has an effective date of March 25, 2003 since it qualifies as prior art under 35 USC 102(e) and the subject matter relied upon is disclosed in 60/457,459.

Response to Arguments

7. Applicant's arguments filed September 20, 2007 have been fully considered but they are not persuasive. With regard to claim 1, Applicants urge that there is no indication in Mao et al. that insulator 89 secures any portion of protrusion 82a to volume 84a. While the composition of the insulator is not explicitly specified by the reference, the position is maintained that the insulator functions to secure, or is at least capable of securing, the volume to the protrusion. It is submitted that the term "secure" is broader than "adhere," and it is believed that the protrusion is

secured to the volume by the insulator for at least the reason that the insulator causes a more snug fit between the two components.

Regarding claim 2, Applicants assert that "there is no reason set forth in the patent or otherwise to suggest replacing insulator 89 with an adhesive tape." However, it is submitted that the motivation to make the proposed substitution arises from the level or ordinary skill in the art (to increase adhesion between the components). Furthermore, all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Regarding claim 3, Applicant's arguments are not persuasive. Claim 3 recites "said volume for receiving said adhesive tape in said liquid state." There is no evidence that the volume of Mao is not capable of receiving the tape in a liquid state. Accordingly, claim 3 is believed to be properly rejected over Mao et al.

Regarding claim 10, Applicants state that "there is no reason offered in *Mao, et al.* or any other reference for oversizing the volume relative to the protrusion." However, as stated in the rejection, this would be an obvious modification based on need to provide adequate space within the volume for the securing member. It is also submitted that the motivation to make the proposed substitution arises from the level or ordinary skill in the art. Accordingly, the rejection of claim 10 is also believed to be proper.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan, can be reached at (571) 272-1292. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jonathan Crepeau
Primary Examiner
Art Unit 1795
December 5, 2007